

CLAIMS

What is claimed is:

- 1 1. A mode scrambler, comprising:
  - 2 an optical fiber adapter having a gap, a first end, and a second end,
  - 3 wherein a single mode optical fiber is coupled to the first end and a multimode optical
  - 4 fiber is coupled to the second end; and
  - 5 a diffuser disposed in the gap.
- 1 2. The mode scrambler of claim 1 wherein the diffuser comprises a piece of
- 2 Scotch® tape.
- 1 3. The mode scrambler of claim 1 wherein the diffuser comprises a thin piece of
- 2 glass.
- 1 4. The mode scrambler of claim 1 wherein the diffuser comprises a thin piece of
- 2 plastic.
- 1 5. The mode scrambler of claim 1 wherein the diffuser comprises a thin piece of
- 2 acetate.
- 1 6. The mode scrambler of claim 1 wherein the diffuser comprises a thin piece of
- 2 acrylic.
- 1 7. The mode scrambler of claim 1 wherein the diffuser comprises particulate
- 2 suspended in a material having a uniform index of refraction.
- 1 8. The mode scrambler of claim 1 wherein the diffuser comprises air.

- 1 9. A method to scramble an optical signal, comprising:
  - 2 disposing a diffuser between mating ends of an optical fiber adapter
  - 3 having a single mode end and a multimode end;
  - 4 launching a single mode signal in the single mode end; and
  - 5 receiving a multimode optical signal in the multimode end.

1 10. The method of claim 9, further comprising disposing a piece of Scotch® tape  
2 between the mating ends of the optical fiber adapter.

1 11. The method of claim 9, further comprising disposing a thin piece of glass  
2 between mating ends of the optical fiber adapter.

1 12. The method of claim 9, further comprising disposing a thin piece of plastic  
2 between mating ends of the optical fiber adapter.

1 13. The method of claim 9, further comprising disposing a thin piece of acetate  
2 between mating ends of the optical fiber adapter.

1 14. The method of claim 9, further comprising disposing a thin piece of acrylic  
2 between mating ends of the optical fiber adapter.

1 15. The method of claim 9, further comprising disposing particulate suspended in a  
2 material having a uniform index of refraction between mating ends of the optical fiber  
3 adapter.

1 16. The method of claim 9, further comprising disposing air in the gap.